

**Title: Climate stability and its effect on human history.**

Only a few years ago there was a widespread comfortable belief that the world climate was more or less stable. Of course the weather changed. Some years were colder than others and there were draughts and floods, but the long run average (climate) was believed to remain stable. The changes observed in the past few decades have shaken that belief. Climate is apparently not stable now.

Was climate stable in the past? How did it change and why? What were the effects on human history? I will discuss climate change and stability during several major events in human history; the Little Ice Age in Northern Europe (~1600 AD), the collapse of the Classical Mayan Civilization (~850 AD) and the invention of agriculture (~11,000 years before the present).



Palenque, a Mayan center, ~ 400-850 AD

## Short CV.

Joan Feynman received her Ph. D. in Physics from Syracuse University and then began her geophysical career at the Lamont-Daugherty Laboratories of Columbia University. Since then she has focused on aspects of solar terrestrial relations, including geomagnetic activity, space environments, coronal mass ejections, solar activity and most recently, solar influence on climate. Now a Principal Scientist, she has been at JPL for over twenty years. She was a JPL Senior Research Scientist and received a NASA Exceptional Scientific Achievement Medal for her work on solar causes of geomagnetic activity and climate disturbances.



Joan Feynman sitting on the very hot steps of a Classical Mayan ruin in the lowlands of Belize. This site was probably abandoned during the 9<sup>th</sup> Century A.D. because of a loss of climate stability.